Remarks

Claims 41-59 are now pending in this application. Applicants have canceled claims 27-40 and presented new claims 41-59 to clarify the present invention.

Objection to the specification

In the final office action issued November 26, 2003, The Examiner objected to the specification. With respect to this objection, it is clear from the drawings and description that the width 12 referred to at page 13, line 1 is the smaller diameter 12 described at page 11, line 2. This is shown in particular in Fig. 7. It is clear also from the drawings that page 13, line 2 refers to a portion 5a of the inside surface. This portion is shown in particular in Figs. 1 and 2 and also described at page 11, lines 11-14. In spite of the above, Applicants have amended the specification to clarify the language identified by the Examiner. Accordingly, Applicants respectfully request withdrawal of the objection to the specification.

Rejection under 35 U.S.C. § 112, second paragraph

In the final office action, the Examiner rejected claims 28-32 and 35-39 under 35 U.S.C. § 112, second paragraph. The pressing direction could be from any one or both ends of the tube section. Accordingly, the claim language is not conflicting. Along these lines, a central longitudinal section could have a reduced diameter with respect to longitudinal sections at the openings of the tube section. Such a structure would include longitudinal sections that have

reduced diameter in a pressing-in direction. In view of the above, Applicants submit that newly presented claims 41-59 comply with 35 U.S.C. § 112, second paragraph.

Rejection under 35 U.S.C. § 103

In the final office action, the Examiner rejected claims 27, 29, 32-34, 37, and 40 as being unpatentable under 35 U.S.C § 103(a) over U.S. patent 4,347,219 to Noritake et al. in view of U.S. patent 5,413,766 to Dattge et al. and either JP 09-242533 or GB 1,473,219.

The Examiner rejected claim 28 under 35 U.S.C. § 103(a) as being unpatentable over Noritake et al. in view of Dattge et al. and either JP 09-242533 or GB 1,473,219 and further in view of U.S. patent 4,413,392 to Otani et al.

The Examiner rejected claims 30, 31, 38, and 39 under 35 U.S.C. § 103(a) as being unpatentable over Noritake et al. in view of Dattge et al. and either JP 09-242533 or GB 1,473,219 and further in view of JP 09-112260.

The Examiner rejected claims 35 and 36 under 35 U.S.C. § 103(a) as being unpatentable over Noritake et al. in view of Dattge et al. and either JP 09-242533 or GB 1,473,219 and further in view of DE 36 38 050.

Noritake et al. does not suggest the present invention as recited in newly presented independent claims 41 and 50. Noritake et al. takes off from a known arrangement as shown in

Figs. 4 and 5, which show a structure that includes a uniform inside diameter. Inside the casing, a monolith is positioned with the aid of a wire-mesh mat. However, this positioning is not sufficient to hold the monolith securely in place in axial direction inside the casing. Positioning rings, which are also made from wire mesh, therefore project into the fronts of the monolith to ensure the positioning in axial direction.

Noritake et al. suggests that a problem occurring with this known arrangement was that the wire-mesh mat is extended in the axial direction during the scoring of a monolith packet, thus making contact with the positioning ring and displacing it in the axial direction, so that the positioning ring no longer rests against the front of the monolith. Axial play develops as a result, so that a secure axial positioning is no longer ensured. In addition, the end regions of the wire-mesh mat are compacted during the pressing in, which increases the pressing force exerted onto the monolith in an impermissible manner.

To solve this problem, Noritake et al. notes that the prior arrangement provides that the internal cross-sectional surface of the casing for the known catalytic converter is not reduced in stages to increase the pressing force of the wire-mesh mat. However, Noritake et al. observe that in view of the problem definition, this would be counter-productive since a gap between monolith and casing that is reduced further, as compared to the prior art according to Figs. 4 and 5, would lead to further axial expansion of the wire-mesh mat. The problem of the axial displacement of the positioning rings and the increase in the pressing force would become worse in that case. Thus, the solution according to Noritake et al. provides for expanding the end sections of the casing to create a space into which the wire-mesh mat can freely expand. Thus,

only the elongated casing section 1a and not the expanded casing ends 1c serve to position the monolith. This elongated casing section 1a of Noritake et al. thus forms the only positioning region for the monolith because only in this region is a sufficient restoring force for the wire-mesh mat generated. As can be seen from Figures 1 and 3 of Noritake et al., elongated casing section 1a has a uniform cross section, which is entirely contrary to the invention recited by claims 41 and 50, wherein the positioning area includes at least two longitudinal sections having different cross sectional areas which decrease in the pressing direction.

Noritake et al. confirms the foregoing interpretation numerous times. For example, in the passage at col. 3, lines 24 to 29, Noritake et al. state, "the catalyst substrate 8 is inserted **so as to be supported in the smaller diameter portion 1a** of casing body 1 through the medium of the cushioning element 9 which is radially compressed to an appropriate extent and presented at the opposite ends to the larger-diameter portions 1c or casing body 1."

Also, at col. 3, line 68, through col. 4, line 9, Noritake et al. state, "In the process of insertion, the cushioning element 9 encircling the catalyst substrate 8 first enters the larger-diameter portion 1c while being radially inwardly compressed by the flared inside wall surface of the insertion jig J and is then inserted into the smaller-diameter portion 1a of casing body 1 while being secondly compressed by the sloped shoulder portion 1b **so that the catalyst substrate 8 is supported resiliently in the smaller-diameter body portion 1a by the tubular cushioning element 9**."

Furthermore, at col. 5, lines 14 to 21, Noritake et al. state, "[T]he amount of increase in

its axial length is minimized even under vibration or mechanical shock to which the catalytic converter is subjected since the end regions of cushioning element 9 presented to the larger-diameter portions 1c of casing body 1 **are released free to expand radially**."

Particularly interesting is also the text passage col. 5, lines 29 to 43, in which Noritake et al. addresses the problem that even monoliths made of ceramic material have relatively large diameter tolerances of -2.6 to +1.6mm. According to this passage, a diameter tolerance of this type can be compensated for with the casing by correspondingly adapting its smaller section 1a. In contrast, the expanded regions 1c should remain unchanged. This shows again that the expanded regions 1c of Noritake et al. do not serve to position the monolith, but that the responsible positioning region is formed solely by the non-expanded (i.e. uniform cross section) elongated portion 1a.

The use of a mineral fiber mat represents another difference between the present invention and Noritake et al. The Examiner asserts that replacing the wire-mesh mat with a mineral fiber mat would be obvious to one of ordinary skill in the art. However, during insertion of a mineral fiber mat into a tube-shaped casing, a mineral fiber mat does not behave in the same way as a wire-mesh mat. In particular, one would not observe with a mineral fiber mat an axial expansion and compression at the respective ends of the positioning region. That being the case, there would be no need to expand the casing ends as taught by Noritake et al., but rather the casing design shown in the prior art of Figure 4 in Noritake at al, with continuous, uniform cross-sectional areas, could be used.

Combining Noritake et al. with any of the secondary references would not suggest the present invention as recited in newly presented independent claims 41 and 50, since none of the secondary references suggest the above-discussed features that are absent from Noritake et al. The Examiner only cites the secondary references as suggesting elements such as a mineral fiber mat and pressing in a monolith from each end of a tube. Providing the structure suggested by Noritake et al. with such elements does not overcome the deficiencies of Noritake et al. discussed above. Since the cited references do not suggest the present invention as recited in newly presented independent claims 41 and 50, it follows that the cited references also do not suggest dependent claims 42-49 and 51-59. Further, the catalytic converters using a cone shaped casing tapered in the direction of flow as in JP 9-242533 and GB1, 473,219 operate in a fundamentally different manner to secure the monolith as compared to cylindrical converters of the type disclosed in Noritake et al. In the cone shaped casing, the monolith is securely wedged into the casing as a result of the flow pressure exerted by the exhaust gases onto the monolith. By contrast, the monolith in the cylindrical casing converter is secured with radically pre-stressed positioning mats such that the monolith is kept securely in the axial position counter to the flow of exhaust gases. The exhaust gas does not aid in positioning of the monolith, but rather represents a parameter that actually weakens this positioning. Since conical casings operate in such a different manner to position the monolith relative to cylindrical casings, it is respectfully submitted that there is no basis for combining these references with Noritake et al. in the manner suggested in the Examiner's Action.

Applicants respectfully request that the Examiner reconsider and withdraw all previous

objections and rejections.

If the Examiner believes that personal communication will expedite prosecution of this application, the Examiner is hereby invited to telephone the undersigned at the number provided.

Respectfully submitted,

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Eric J. Franklin
Registration No. 37,134
VENABLE
P.O. Box 34385
Washington, DC 20043-9998
Telephone:202 344 4936